The Quantum Dynamics of Electrical Induction and Novel Concept for More Efficient Inductive Materials

17 February 2024
Simon Edwards
Research Acceleration Initiative

Introduction

Although the concept of electrical induction is far from a new one, the quantum mechanisms underpinning electrical induction remain entirely unexplored. A more comprehensive understanding of this phenomenon at the quantum level would lead to not only more efficient inductive materials, but a more complete understanding of quantum mechanics generally.

Abstract

When electrical induction occurs, new electrons are somehow generated with no input except for the addition of a magnetic field generated by the circulating of electrical energy in a collocated (usually closed) loop. Physicists continue to debate whether quantum magnetism exists, despite overwhelming evidence that it does, indeed exist. All other phenomena of quantum mechanics traditionally described in terms of field effects have ultimately been linked to a quantum particle which was merely difficult to detect utilizing legacy detection methods. Examples of induction effects (visible) include Tesla coils as well as the natural electrical induction in the iron-nickel core of the Earth which drives both tectonic and volcanic activity through the heat generated continually by this effect.

This author has already proposed that certain quantum particles may form as the result of the confluence of streams of quantum particles more granular than the particles being manifested. Other examples of this include the formation of electrons as the result of influxing neutrinos, the formation of quarks as the result of multiple convergent gluon streams (which in turn result from proximal, opposing-direction near-misses of protons at relativistic velocities.) Electron manifestation resulting from induction may be attributable to yet another quantum particle converging from multiple direction at a single point. That quantum particle, not to be confused with the magnon, is the magneton. Whereas a magnon is usually defined as a electron-scale particle lacking in apparent charge whilst continuing to exhibit magnetic properties, a magneton is a particle of much finer granularity in the same general family as the neutrino. These particles are quantum force carriers for magnetic fields.

Ferromagnetic metals are particularly efficient inducers, in this author's view, in part because of the uniform magnetic alignment of the shell 2 electrons of ferromagnetic elements. The discrete magnetism of individual electrons, even in the valence ring, is amplified in terms of its magnitude by nearby sources of magnetism. Multiple overlapping magnetic fields can substantially increase the force exerted by a single electron.

Thus, if we add an external source of magnetism to a ferromagnet, we are creating a situation in which magnetons are flowing through the inducer, often with angular momentum that is offset (angularly) from the angular momentum of magneton streams emitted by the electrons in the inducer materials. When considering that even in ferromagnetic materials the spin orientation (and thus direction of emission of magnetism) in valence electrons is chaotic, this creates the potential for three independent magneton streams to converge on a single point in space. I propose that it is only at these points of convergence that electrons may manifest during the process of electrical induction.

These points of convergence are nearly always situated near the valence ring of materials and outside of the orbit of the electrons of a material betwixt two neighboring atoms.

To understand why it is that this is the most likely explanation for electrical induction at the quantum level, consider the metaphor of the tornado. For a tornado to form, one must combine streams of warm air (which rise) and cold air (which sinks) and one must also add to this the ingredient of rotation. In the case of magneton streams, three streams from three different directions can enable the formation three-magneton systems which are comparable to the three-quark systems which make up protons and neutrons. This author has previously suggested that those three-quark systems function on the basis of two 'up' quarks (in the case of the proton) maintaining antipodean opposition to one another with the 'down' quark always standing between them as they rotate at high velocity around the central quark.

Once a three-magneton rotational body is established, this constitutes the establishing of which you might term the scaffolding of a new electron. This scaffolding is capable of accumulating electrical charge (derived from the ambient neutrino field) and this occurs on a remarkably short timescale (perhaps less than an attosecond.) Because these electrons manifest in the space between atoms and not in the orbit of atoms, their tendency is to flow through the material and aggregate near the perimeter of metallic bodies, resulting in the characteristic arcing around Tesla coils, in one example. Electrons can be formed from an ambient neutrino field through the abrupt dislocation of electrons (which also results in magnetism striking a common spatial point from different directions, even if the source is a single electron,) although when this occurs it is not a form of induction but rather a form of Self-Amplifying Spontaneous Emission (SASE.)

Further evidence for this model includes the physical behavior exploited by Magnetic Resonance Imaging technology. Powerful magnetic pulses (if they are sufficiently powerful) can result in what is termed "resonance," even in organic tissues not ordinarily considered to be electrically inductive. These resonances are RF band emissions that result from the magnetic pulses. Beyond this basic behavior, little is understood about why radio emissions propagate from traditionally non-inductive (organic) materials exposed to such powerful

magnetic fields. In short, supposed subject-matter experts understand that it works but do not understand why it works.

What is actually transpiring in the case of the magnetic pulses of MRI machines is that electrons are being manifested through the aforementioned process of the convergence of three independent magneton streams. Once these electrons materialize, current flows through the material. This flow has an associated radio-frequency emission which can be detected by RF detectors in MRI machines. One could say that MRIs work by gently electrocuting patients through electrical induction. This is not to suggest that MRI technology is fundamentally dangerous for medical imaging application, but this description is a far more accurate one than the suggestion (doctrine for nearly 50 years) that MRI technology somehow magically causes living cells to resonate electromagnetically.

This understanding paves the way to the construction of novel inducers which may render more practical the wireless transmission of power. If three magneton streams from varied angular sources are required for the formation of a new electron, it stands to reason that a material which is mostly ferromagnetic with copper inlays in a herringbone configuration would be capable of forcing linear formations of ferromagnetic atoms to maintain spin orientations which face toward common, central points. These aligned atoms would form right angles relative to one another and would allow magnetons from the external magnetic field (the power source) to flow through the central channel toward the point of convergence. Generated current would tend to follow the copper nanowire flow channels and this flow would force the maintenance of angularly offset magnetic alignments (not unlike training one's hair to grow in a certain direction by brushing it repeatedly) despite an external electrical field which would ordinarily, before long, result in the uniforming of the alignment of ferromagnetic materials. While a small amount of energy would be "wasted" through the circulation of generated electricity through the herringbone pathways, this invested energy would result in the manifestation of a far greater number of electrons relative to the magnetic field strength of the emitter.

Conclusion

While induction, particularly over long ranges, is intrinsically inefficient from a certain perspective (given that magnetons flow through a spherical volume that grows exponentially with linear increases in range,) the fact that magnetons always follow curved flight paths leading back to their source (due to self-interaction) means that some of these magnetons are, in fact, recycled.

Furthermore, this new approach to the generation of electricity through inducers, given that it is quantum-efficient, may enable the creation of electrical generators which can generate modest amounts of steady electrical current derived from either the Earth's and/or Sun's magnetic fields.

These insights recommend the development of quantum-efficient inducer prototypes which may have alternative applications including radio detection in addition to enabling wireless electrical power transmission.